Remarks

The instant Office Action dated January 2, 2008 listed the following rejections: claims 1-10 stand rejected under 35 U.S.C. § 101; and claims 1-3 and 9-10 stand rejected under U.S.C. § 103(a) over Nishio *et al.* (U.S. Patent No. 5,774,842) in view of Yutaka Goto, "Effects of Noise on the Interpolation Accuracy for Apodized FFT Spectra of Time-Domain Damped Signals", Department of Information Science Electronics, Tsukuba College of Technology, Tsukabashi, Ibaraki, 305 Japan, Volume 49, Number 12, 1995. Claims 4-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. As discussed below, Applicant traverses each of these rejections.

The § 101 Rejection Is Inconsistent With The Law.

Applicant respectfully traverses the § 101 rejection of claims 1-10 because the claims are directed to statutory subject matter. According to M.P.E.P. § 2106(IV)(C), "It is now commonplace that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection." *Diehr*, 450 U.S. 175, 187 (1981). For claims including such excluded subject matter to be eligible for patent protection, the claim must be for a practical application of the abstract idea, law of nature, or natural phenomenon. "A claimed invention is directed to a practical application of a 35 U.S.C. 101 judicial exception when it: (A) "transforms" an article or physical object to a different state or thing; or (B) otherwise produces a useful, concrete and tangible result." M.P.E.P. § 2106(IV)(C)(2). In this instance, the claimed invention includes aspects directed towards subtracting quantization noise from a pulse code modulated signal. The PCM signal is transformed by subtracting the calculated quantization noise. Applicant submits that the claimed invention also produces a useful, concrete and tangible result (*e.g.,* a PCM signal from which the calculated quantization noise has been removed). Thus, the claimed invention is to a practical application of a 35 U.S.C. 101 judicial exception. Moreover, Applicant notes that claims 9-10 are directed to a quantization noise subtracting unit, which is clearly statutory subject matter. Accordingly, the § 101 rejection of claims 1-10 is improper and Applicant requests that it be withdrawn.

The § 103 Rejections Are Conclusory.

Applicant respectfully traverses the § 103(a) rejections of claims 1-3 and 9-10 and submits that there is no reason to combine the cited references and that the Office Action relies upon improper conclusory statements in asserting obviousness, thereby directly contradicting the U.S.P.T.O. guidelines for maintaining an obviousness rejection under KSR ("Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."). *See KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (U.S. 2007). Applicant respectfully maintains that these rejections are improper for the reasons presented in the Office Action Response dated November 2, 2007 hereby incorporated by reference in its entirety. Generally, these reasons concern the impropriety of the combination from the contexts of the lack of any evidence and/or reason to combine the cited references. The Examiner in the instant Office Action responded to Applicant's previous arguments by quoting various authority, of which Applicant is well aware; however, the Examiner has neither applied these quotations to Applicant's previous arguments nor to the rejections. Instead the Examiner continues to rely upon improper conclusory statements in asserting obviousness and the Examiner still has not provided any support for the various conclusions upon which the rejections are based.

Moreover, Applicant maintains that the rejection is improper because the Office Action has not established that the combination of several equations taught by the Yutaka Goto article would result in an equation that is the same as Applicant's claimed invention. More specifically, the Examiner appears to be proposing substituting Equation 11 into Equation 9 based upon the relationship that the square root of B = the standard deviation σ.

$$= \sigma^2 \sum_{m=0}^{N-1} |w(m)|^2 \qquad\qquad (9)$$

$$\mathbf{B} = \frac{1}{\delta} \int_{-\delta/2}^{\delta/2} e^2(t)\, \mathrm{d}t = \frac{1}{\delta}\left(\frac{q}{\delta}\right)^2 \int_{-\delta/2}^{\delta/2} t^2\, \mathrm{d}t = \frac{q^2}{12}. \quad (11)$$

Applicant submits that the result would be the following equation.

$$= \frac{q^2}{12} \sum_{m=0}^{N-1} |w(m)|^2$$

Applicant further submits that this substitution in no way results in Applicant's equation reproduced below.

Applicant's equation:

$$B_q = \sqrt{\sum_{n=0}^{W-1} \frac{\{(s_{min}^*[n] - s_{max}^*[n]) \cdot w[n]\}^2}{12}}$$

For example, the Examiner's equation does not have any corresponding subtraction of $S*_{max}^{[n]}$ from $S*_{min}^{[n]}$ for each of the specific samples n, where $S*_{min}^{[n]}$ represents the minimum quantization noise level for a specific sample value s*[n] of the PCM signal and $S*_{max}^{[n]}$ represents the maximum quantization noise level for the specific sample value s*[n] of the PCM signal. As such, the skilled artisan would recognize that $S*_{min}^{[n]}$ - $S*_{max}^{[n]}$ can have different values for different specific samples n. Applicant has amended the claims in a manner consistent with that which the skilled artisan would have recognized as the intended scope of the claims. Specifically, that $S*_{min}^{[n]}$ - $S*_{max}^{[n]}$ has a different value for at least two specific samples n respectively. Applicant submits that the Examiner's equation does not take into account the possibility of such different values. For example, the difference between the minimum quantization noise level and the maximum quantization noise level in the Examiner's equation is a fixed value q for each of the specific samples (*i.e.,* the result of the summation is multiplied by the fixed value instead of the differences between the noise levels being part of the summation). Thus, the Examiner's equation does not contemplate that $S*_{min}^{[n]}$ - $S*_{max}^{[n]}$ has a different value for at least two specific samples n respectively. As such, the cited portions of the Yutaka Goto reference do not correspond to the claimed invention. Accordingly, the § 103(a) rejection of claims 1-3 and 9-10 is improper and Applicant requests that it be withdrawn.

There Is No Reason To Combine The Cited References And The Office Action Relies Upon Improper Conclusory Statements In Asserting § 103.

The asserted basis to combine is contrary to the requirements of § 103 and relevant law. "A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (U.S. 2007). In this instance, the Office Action

improperly concludes that it would be obvious to combine the cited teachings of Yutaka Goto with the Nishio reference "for the benefit of determining the power spectrum of noise as a function of the quantization noise and some windowing function." *See, e.g.,* page 6:20 to page 7:2 of the instant Office Action. However, this conclusion is unsupported by any rationale in the cited references. The case law is clear that "Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *KSR,* 127 S. Ct. at 1741.

More specifically, the Office Action makes a general statement as to the reason one would combine the references without addressing how they would be combined and without providing any explanation as to why one would combine the specific elements of the cited references.

At a first example, the Office Action improperly concludes that it would be obvious to incorporate a combination of the equations taught by Yutaka Goto "into the system of Nishio, in the manner as claimed." *See, e.g.,* page 8:5-7 of the instant Office Action. Applicant is unable to determine the particular combination being asserted by the Office Action as no explanation is provided regarding how this combination of equations is to be incorporated into Nishio. Applicant submits that the references do not show how to combine the cited teaching. It appears that the Office Action is merely identifying general concepts from the references and arranging them in a manner taught by Applicant's disclosure. Thus, Applicant submits that the Office Action appears to be improperly resorting to hindsight reconstruction based upon Applicant's disclosure in an attempt to arrive at a combination that corresponds to the claimed invention. *See, e.g.,* M.P.E.P. § 2142. The Examiner in the instant Office Action fails to provide any further clarification regarding how Yutaka Goto's equations are to be combined with the Nishio reference. The Examiner continues to simply conclude that one would combine the cited references.

As a second example, regarding claim 3, the Office Action simply concludes that "one skilled in the art would know how to make and use of these equations in order to come up with the quantization levels." *See, e.g.,* page 9:7-9 of the instant Office Action. Applicant respectfully traverses this unsupported assertion. *See, e.g.,* M.P.E.P. § 2144.03 ("It would not be appropriate for the examiner to take official notice of facts without citing

a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known.") Moreover, the cited portions of Yutaka Goto do not teach predicting the minimum quantization level S^*_{min} and the maximum quantization level S^*_{max} for each of the specific samples n because Yutaka Goto does not contemplate different values for the difference between the minimum quantization noise level and the maximum quantization noise level (*e.g.,* Yutaka Goto uses a fixed value q as discussed above).

In view of the above, the Office Action has not provided any evidence as to why one of skill in the art would find the asserted combination obvious as required. Accordingly, the § 103(a) rejection of claims 1-3 and 9-10 is improper and Applicant requests that it be withdrawn.

The Asserted Combination Would Result In An Inoperable Embodiment.

Applicant respectfully submits that there is no motivation for a skilled artisan to combine the cited references, especially since the proposed combination would not result in an operable embodiment. Pursuant to M.P.E.P. § 2143.01, a § 103(a) rejection cannot stand where the asserted combination would render the reference unfit for its intended operation. *See also In re Gordon*, 733 F.2d 900 (Fed. Cir. 1984).

With regard to the Office Action's asserted combination of Yutaka Goto's equations and the Nishio reference, the incorporation of these equations into the cited portions of the Nishio reference is illogical. More specifically, the Nishio reference teaches determining the quantization error that is generated at the time of quantization by using subtractor 12 in order to subtract the input to the quantizer 11 from the output of the quantizer 11. *See, e.g.,* Figure 8 and Col. 5:16-20. The Office Action appears to propose incorporating Yutaka Goto's equations into the subtractor 12 of Nishio. However, Applicant submits that it would be illogical and impractical to incorporate this equation into the subtractor 12. For example, subtractor 12 of the Nishio reference determines the quantization error by a simple comparison of two inputs, one without errors and one with errors, whereas Yutaka Goto's equations do not have any corresponding inputs. Thus, inserting the cited equation into Nishio's application would be illogical and would render the Nishio reference unfit for its intended operation of removing the quantization error. *See, e.g.,* Nishio's Abstract.

Moreover, as discussed above, the Nishio reference determines the quantization error that is generated by the quantizer 12. *See, e.g.,* Figure 8 and Col. 5:16-20. Thus, there would be no reason to combine an equation for determining the quantization error with the Nishio reference as proposed by the Office Action, because Nishio already determines the quantization error. In other words, the skilled artisan would not have reasonably looked to Yutaka Goto to solve a problem that is already addressed by Nishio. Therefore, the § 103(a) rejection of claims 1-3 and 9-10 is improper for lack of motivation or suggestion to combine and Applicant requests that it be withdrawn.

Applicant has added new claims 11-16, which depend from claim 9. Applicant submits that claims 11-16 are allowable over the cited references for at least the reasons discussed above in relation to the § 103(a) rejection of claim 9.

In view of the remarks above, Applicant believes that each of the rejections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063 (or the undersigned).

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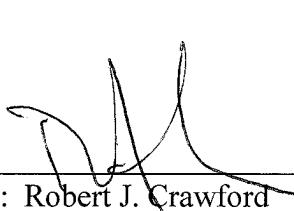
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